

REGULATIONS GOVERNING VERTICAL VENTILATION HOLES AND MINING NEAR GAS WELLS

4 VAC 25-101-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings, unless the context clearly indicates otherwise:

“Accurate map or plat” means a map or plat drawn of a scale of between one inch equals 100 feet (1:1,200) and one inch equals 400 feet (1:4,800) with the scale so stated on the map or plat and certified by a licensed professional engineer or licensed land surveyor.

"Approved" means a device, apparatus, equipment, condition, method, course or practice approved in writing by the Chief. Approvals by federal agencies such as the Mine Safety and Health Administration (MSHA), or the Office of Surface Mining (OSM), shall also be considered "approved" for the purposes of this chapter.

“Bridge Plug” means an obstruction intentionally placed in a vertical ventilation hole at a specified depth.

“Building” means a structure regularly occupied in whole or in part as a habitation for human beings, or where people are accustomed to live, work, or assemble.

"Casing" means all pipe set in wells or vertical ventilation holes except conductor pipe and tubing.

"Cement" means hydraulic cement properly mixed with water.

"Chief" means the Chief of the Division of Mines of the Department of Mines, Minerals and Energy, or his authorized agent.

“Coalbed methane gas” means occluded natural gas produced from coalbeds and rock strata associated therewith.

"Coalbed methane gas well" means a well capable of producing coalbed methane gas.

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"Coal-protection string" means a casing designed to protect a coal seam by excluding all fluids and gas or gas pressure from the seam, except such as may be found in the coal seam itself.

"Coal seam" means any stratum of coal twenty inches or more in thickness, unless a stratum of less thickness is being commercially worked, or can in the judgment of the Department foreseeably be commercially worked and will require protection if wells are drilled through it.

"Directional survey" means a well survey that measures the degree of deviation of a hole from true vertical and direction of points in the hole from the vertical.

"Director" means the Director of the Department of Mines, Minerals and Energy or his authorized agent.

"Division" means the Division of Mines of the Department of Mines, Minerals and Energy.

"Form prescribed by the Chief" means a form issued by the division, or an equivalent facsimile, for use in meeting the requirements of the Code of Virginia or this chapter.

"Gas" or "natural gas" means all natural gas whether hydrocarbon or non-hydrocarbon or any combination or mixture thereof, including hydrocarbons, hydrogen sulfide, helium, carbon dioxide, nitrogen, hydrogen, casing head gas, and all other fluids not defined as oil.

"Gas well operator" means any person who has been designated to operate or does operate a gas well.

"Gas and Oil Inspector" means the Director of the Division of Gas and Oil of the Department of Mines, Minerals and Energy.

"Gas well" means any well which produces or appears capable of producing a ratio of 6,000 cubic feet (6 Mcf) of gas or more to each barrel of oil, on the basis of a gas-oil ratio test.

"Gob well" means a coalbed methane gas well which is capable of producing coalbed methane gas from the de-stressed zone associated with any full-seam extraction of coal that extends above and

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below the mined-out coal seam.

“Groundwater” means all water under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, which has the potential for being used for domestic, industrial, commercial or agricultural use or otherwise affects the public safety.

"Highway" means any public street, public alley, or public road.

“Inclination survey” means a survey taken inside a vertical ventilation hole that measures the degree of deviation of the point of the survey from the vertical.

“Intermediate string” means a string of casing that prevents caving, shuts off connate water in strata below the water-protection string, and protects strata from exposure to lower zone pressures.

“Log” means the written record progressively describing all strata, water, or gas encountered in drilling, depth and thickness of each bed or seam of coal drilled through, volume of gas, pressures, rate of fill-up, fresh and salt water-bearing horizons and depths, cavings strata, casing records and such other information as is usually recorded in the normal procedure of drilling. The term shall also include electrical survey records or electrical survey logs.

"Mcf" means, when used with reference to natural gas, 1,000 cubic feet of gas at a pressure base of 14.73 pounds per square inch gauge and a temperature base of 60° F.

"Mined coal seam" means a coal seam being mined commercially, or which, in the judgment of the Chief, can reasonably be expected to be mined, and which, when mined, will require protection if holes are drilled through it.

“Mining” means the activity of producing coal from any coal mine.

“Mud” means a mixture of materials which creates a weighted fluid to be circulated downhole during over-balance drilling operations for the purpose of lubricating and cooling the bit, removing cuttings, and controlling formation fluids, oil, gas or gas pressure.

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"Owner" means the person or persons listed as owner of record by the Clerk of the Circuit Court of the county in which the property is located.

"Pending" means an application for a vertical ventilation hole or gas well permit that has been submitted to the department, but where the decision to issue or refuse to issue the permit has not been made.

"Permanent point" means an established physical point of reference on the land surface, based on the applicant's coordinate system, used for a map or plat submitted with a permit application.

"Permitted" means a vertical ventilation hole or gas well that has been approved by the department.

"Person" means individual, corporation, partnership, association, company, business, trust, joint venture, unit of government, or other legal entity.

"Pillar" means a solid block of coal or ore or other material left unmined to support the overlying strata in a mine.

"Pipeline" means any pipe buried or on the surface used or to be used to transport gas.

"Plug" means the sealing of, or a device or material used for the sealing of, a vertical ventilation hole or casing to prevent the migration of formation fluids or gas from one stratum to another.

"Railroad" means any steam, electric or other powered transportation system operating on a track which carries passengers for hire, or over which loaded or empty equipment is transported.

"State plane coordinate system" means the Virginia Coordinate System of 1927 or the Virginia Coordinate System of 1983 as defined in Chapter 17 (Section 55-287 et seq.) of Title 55 of the Code of Virginia.

"String of pipe" or "string" means the total footage of pipe of uniform size set in a vertical ventilation hole. The term embraces conductor pipe, casing, and tubing. When the casing consists of

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segments of different size, each segment constitutes a separate string. A string may serve more than one purpose.

"Tubing" means the small diameter string set after the vertical ventilation hole has been drilled from the surface to the total depth and through which a substance is produced or injected.

"Vertical ventilation hole" means any hole drilled from the surface to the coal seam used primarily for the safety purpose of removing gas from the underlying coal seam and the adjacent strata, thus, removing the gas that would normally be in the mine ventilation system.

"Water-protection string" means a string of casing designed to protect groundwater-bearing strata.

"Well" means any shaft or hole sunk, drilled, bored or dug into the earth or into underground strata for the extraction, injection or placement of any gaseous or liquid substance, or any shaft or hole sunk or used in conjunction with such extraction, injection or placement. The term shall not include any shaft or hole sunk, drilled, bored or dug into the earth for the sole purpose of pumping or extracting therefrom potable, fresh or usable water for household, domestic, industrial, agricultural, or public use and shall not include water boreholes, vertical ventilation holes where methane is vented or flared rather than produced and saved, subsurface boreholes drilled from the mine face of an underground coal mine, any other boreholes necessary or convenient for the extraction of coal or drilled pursuant to a uranium exploratory program carried out pursuant to the laws of this Commonwealth, or any coal or non-fuel mineral corehole or borehole for the purpose of exploration.

4 VAC 25-101-20. Application for permits; maps or plats; notice.

A. Before drilling a vertical ventilation hole on any tract of land, the mine operator shall file with the

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Chief, together with the application required, an accurate map or plat. It shall show:

1. The proposed or actual horizontal location of the vertical ventilation hole shown in accordance with the state plane coordinate system, the latitude and longitude, and the surface elevation;
 2. The courses and distances of the proposed location from two permanent points or landmarks as shown on the map or plat;
 3. The name and number proposed to be given to the hole;
 4. The name of the owner and the boundaries and acreage of the tract on which the hole is to be drilled;
 5. The names of the owners of all surface and mineral tracts within 750 feet of the proposed location; and
 6. Any building, highway, railroad, stream, vertical ventilation hole, oil or gas operation, oil or gas pipeline, mine, mine openings or workings, or quarry within 750 feet of the proposed location.
- B. Notice in the form of a copy of the application and map or plat shall be sent by certified mail to the following:
1. Each owner of the surface of the tract which is to be drilled;

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2. ~~Each owner and lessee of record of any coal or mineral rights on, in or under such land; and~~
 3. ~~Each operator or permit holder of any mine, well or quarry within 750 feet of the proposed location.~~
- C. ~~The notice shall inform all persons with standing to object to the permit of their right to object to the proposed location, and shall state the prescribed time limit for objections. Objections filed under this section shall be limited to the proposed location of the vertical ventilation hole, and shall state the nature of the objection.~~
- D. ~~Each owner, lessee or operator may, within 10 days of receipt of the notice, file with the Chief an objection to the proposed location.~~
- E. ~~Any person required to be notified under this section may waive the right to receive notice of the application and the right to object to the proposed location of the hole. The waiver shall be in writing and shall include a written agreement specifying the location of the proposed hole.~~
- F. ~~Each application shall also contain a description of all safety equipment and safety facilities to be used on the surface during drilling and after completion of the hole. The description shall include a diagram showing the placement of equipment and facilities. Safety equipment and facilities described when intersecting active workings shall include, but are not limited to:~~

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1. Flame arresters;
 2. Back-pressure systems;
 3. Pressure-relief systems;
 4. Vent systems; and
 5. Fire-fighting equipment.
- G. Safety equipment and facilities may be removed when a vertical ventilation hole does not intersect active workings and is not utilized to remove methane from a mine ventilation system.
- H. The operator of a coalbed methane or gas well may convert to a vertical ventilation hole by submitting an application containing the information specified in 4 VAC 25-101-20.A and 4 VAC 25-101-20.F to the Chief.
- I. The operator shall notify the Chief in writing prior to converting vertical ventilation hole to a coalbed methane well or gas well.

4 VAC 25-101-30. Receipt of coal seam information: decision on casing.

- A. When an application to drill a vertical ventilation hole has been submitted and notice has been given

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as required in 4 VAC 25-101-20, all interested persons who are owners, lessees, or operators of any coal seams located above the seam from which methane gas is to be removed may furnish information to the Chief regarding the elevations and thickness of the seams, if known.

- B. The Chief shall, prior to the drilling of the hole, approve those seams, which the operator will be required to protect by use of casing as described in 4 VAC 25-101-110.

4 VAC 25-101-40. Expiration of permit.

If the drilling of a vertical ventilation hole has not commenced within two years of the date of the issuance of the permit, the permit shall expire.

4 VAC 25-101-50. Venting methane; bleeder system.

- A. Nothing in this chapter shall prevent the operator of a permitted coalbed methane gas well from venting methane from the well in accordance with the requirements of the Virginia Gas and Oil Act, Chapter 22.1 (Section 45.1-361.1 et seq.) of Title 45.1 of the Code of Virginia and the Virginia Gas and Oil Regulation, 4 VAC 25-150-10 et seq.
- B. The mine bleeder system, when operated in conjunction with vertical ventilation holes or coalbed methane gas wells, shall be operated such that changes in the operation of the vertical ventilation holes or coalbed methane wells shall not create hazardous conditions for the miners working underground. If the operation of a vertical ventilation hole or coalbed methane gas well affects any

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mine's ventilation, the mine shall be adequately ventilated in accordance with the mine's bleeder plan approved under Section 45.1-161.220 of the Coal Mine Safety Act. Any changes or adjustments to such VVH's or coalbed methane gas wells shall be recorded as required by the mine's approved bleeder plan.

4 VAC 25-101-60. Requirements for issuance of permit.

A. The Chief shall issue a permit when the following criteria have been met:

1. An application for a permit to drill and operate has been received, accompanied by an accurate map or plat showing the proposed location of the hole and other required information;
2. No objection to the proposed location has been made by any interested person within the specified 10-day period; or right to object waivers have been submitted in accordance with 4 VAC 25-101.20.E, in which case, the 10 day period shall not apply.
3. No objection to the proposed location has been raised by the Chief; and
4. All other conditions for the issuance of a permit have been met.

B. If an operator shows compelling safety reasons for drilling a vertical ventilation hole without delay, and submits proof in writing that none of the persons with standing to object to the permit have any objections, the Chief may waive the notice requirements under 4 VAC 25-101-20, and may issue

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the permit to drill a vertical ventilation hole, provided all other conditions for permit issuance have been met.

4 VAC 25-101-70. Filing of objections; scheduling of hearing.

A. If an objection is filed by any person notified under 4 VAC 25-101-20 or as provided in 4 VAC 25-101-160 and 4 VAC 25-101-180 the Chief shall:

1. Notify the applicant of the source and nature of the objection; and
2. Schedule a hearing for not less than 20 nor more than 30 days after the date on which the application for a permit or plan was filed. The applicant and person to whom notice was required to be sent shall be given at least 10 days written notice prior to the date of the hearing.

B. At the hearing, the Chief shall consider (i) any evidence presented by the applicant, (ii) any evidence presented by the person filing an objection and (iii) such other evidence that the department may possess.

C. Within 30 days of the hearing the Chief shall issue his decision. All parties to the hearing shall receive, by certified mail, a written summary of the Chief's decision.

1. If the Chief disapproves of the location for the hole or plan, the written summary shall state the reasons for disapproval of the location.

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2. If the Chief approves of the location of the hole or plan, a permit shall be issued or the plan approved.

4 VAC 25-101-80. Location of vertical ventilation hole.

- A. Should the requested location for a vertical ventilation hole allow it to penetrate a minable coal seam or inactive mine, the Chief shall, if necessary for safety purposes, alter the location of the hole for fixing it on a tract of land as near to the requested location as possible. Placement of the hole shall allow it to pass through a pillar of suitable size and/or minimize impact on minable reserves. The Chief shall take into consideration the dangers from creeps, squeezes or other disturbances caused by the extraction of coal when fixing the location of the hole.
- B. If no suitable pillar exists in which to locate the ventilation hole, it may be located and drilled through open workings where, in the judgment of the Chief, it is practical and safe to do so. The Chief shall take into consideration the dangers from creeps, squeezes and other disturbances caused by the extraction of coal.

4 VAC 25-101-90. Record keeping.

- A. A permanent record of each of the following items will be kept by the Division of Mines:
 1. The application;

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2. A plat or map;
3. The notice;
4. Drillers Report (Drillers log, final plat or map, and the results of any log or survey required);
5. Plugging Affidavit;
6. The name of each applicant;
7. The date of receipt of any application, plat or map;
8. The date on which an objection was filed;
9. The date on which a hearing was held;
10. The date on which a permit was issued or refused; and
11. The date on which any action was taken by the Chief.

4 VAC 25-101-100. Review of action of chief.

Any person aggrieved by the Chief's action either in fixing or approving the location of a vertical

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ventilation hole, or in issuing or refusing to issue a drilling permit, shall have the right to request a review of the Chief's action by the circuit court pursuant to Article 4 of the Administrative Process Act Section 9-6.140:15 et seq.

4 VAC 25-101-110. Casing requirements for vertical ventilation holes.**A. Water-protection string.**

1. Except as provided in subdivision A 5 of this section, the permittee shall set a water-protection string to a point at least 300 feet below the surface or 50 feet below the deepest known groundwater horizon, whichever is deeper, circulated and cemented in to the surface. If the cement does not return to the surface, every reasonable attempt shall be made to fill the annular space by introducing cement from the surface.
2. The operator shall test or require the cementing company to test the cement mixing water for pH and temperature prior to mixing the cement and record the results on the cement ticket.
3. After the cement is placed, the operator shall wait a minimum of eight (8) hours and allow the cement to achieve a calculated compressive strength of 500 psi before drilling, unless the Chief approves a shorter period of time. The wait-on-cement (WOC) time shall be recorded within the records kept at the drilling rig while drilling is taking place.

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4. When requested by the Chief, the operator shall submit copies of cement tickets or other documents that indicate the above specifications have been followed.
5. A coal-protection string may also serve as a water-protection string.

B. Coal-protection strings.

1. When any vertical ventilation hole penetrates coal seams that have not been mined out, the permittee shall, except as provided in subdivisions B 2 and B 3 of this section, set a coal-protection string. The coal-protection string shall exclude all fluids, gas and gas pressure except that which is naturally present in each coal seam. The coal-protection string shall also exclude all injected material or disposed waste from the coal seams and the vertical ventilation hole. The string of casing shall be set to a point at least 50 feet below the lowest minable coal seam above the targeted seam and shall be circulated and cemented from that point to the surface or to a point not less than 50 feet into the water-protection string or strings which are cemented to the surface.
2. For good cause shown, either before or after the permit is issued, when the procedure specified in subdivision B 1 is demonstrated by the permittee as not practical, the Chief may approve a casing program involving the cementing of a coal-protection string in multiple stages, or the cementing of two or more coal-protection strings, or the use of other alternative casing procedures. The Chief may approve the program provided he is satisfied that the result will be operationally equivalent to compliance with the provisions of subdivision B 1 of this section for

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~~the purpose of permitting the subsequent safe mining through the vertical ventilation hole or otherwise protecting the coal seams as required by this section. In the use of multiple coal-protection strings, each string below the topmost string shall be cemented at least 50 feet into the next higher string or strings that are cemented to the surface and be verified by a cement top log.~~

- C. ~~In the case of vertical ventilation holes drilled prior to December 11, 1985 through coal seams without coal-protection strings substantially as prescribed in subsection B of this section, the permittee shall retain such coal-protection strings as were set. During the life of the vertical ventilation hole, the permittee shall, consistent with a plan approved by the Chief, keep the annular spaces between the various strings of casing adjacent to coal seams open to the extent possible, and the top ends of all such strings shall be provided with casing heads, or such other approved devices as will permit the free passage of gas or oil and prevent filling of the annular spaces with dirt or debris.~~
- D. ~~The casing program for any vertical ventilation hole designed or completed to vent from more than one stratum shall be designed in accordance with the appropriate standard practices of the industry.~~
- E. ~~Casing through voids shall be accomplished according to the following:~~
1. ~~When a vertical ventilation hole is drilled through a void, the hole shall be drilled at least 30 feet below the void, the annular space shall be cemented from the base of the casing up to the void and to the surface from the top of the void, or it shall be cemented at least 50 feet into the next~~

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- ~~higher string or strings of casing that are cemented to the surface and be verified by a cement top log.~~
- ~~2. For good cause shown, the Chief may approve alternative casing procedures proposed by the permittee, provided that the Chief is satisfied that the alternative casing procedures are operationally equivalent to the requirements imposed by subdivision E.1 of this section.~~
 - ~~3. For good cause shown, the Chief may impose special requirements on the permittee to prevent communication between two or more voids.~~
- ~~F. The permittee shall report to the Chief as soon as possible when an unanticipated void or groundwater horizon is encountered that results in lost circulation during drilling. The permittee shall take every necessary action to protect the lost circulation zone.~~

4 VAC 25-101-120. Survey requirements.

- ~~A. All vertical ventilation holes shall be drilled with due diligence to maintain, within reason, a vertical hole bore.~~
- ~~B. The permittee shall use an inclination survey on any vertical ventilation hole that penetrates a minable coal seam. The inclination survey shall be conducted from the surface to the lowest minable coal seam penetrated by the hole as follows:~~

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1. The first survey point shall be taken at a depth not greater than the most shallow minable coal seam.
 2. Thereafter, shot points shall be taken at each minable coal seam or at intervals of 200 feet, whichever distance is less, to the lowest minable coal seam penetrated by the hole.
- C. If the deviation of the hole exceeds one degree from true vertical at any point between the surface and the lowest minable coal seam, then the permittee, unless granted a variance by the Chief, shall:
1. Correct the hole to within one degree of vertical; or
 2. Conduct a directional survey to the lowest minable coal seam penetrated by the hole and, within 30 days, notify the coal owners or mine operators of the actual location of the hole.
- D. All surveys conducted on the hole shall be filed with the Chief at the same time the information is filed under 4 VAC 25-101-140.

4 VAC 25-101-130. Correction requirements.

- A. Prior to drilling any vertical ventilation hole into a minable coal seam being actively mined within 500 feet of where the hole will penetrate the seam, the permittee shall conduct an inclination survey to determine whether the deviation of the hole exceeds one degree from true vertical. If necessary, the permittee shall then correct the hole to within one degree of true vertical, unless a variance is obtained from the Chief as specified in 4 VAC 25-101-120.

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- B. ~~The Chief may grant a variance to the correction requirements contained in 4 VAC 25-101-120 or this section only after the permittee and the owners or operators of any minable coal seams penetrated by the vertical ventilation hole have jointly submitted a written request for a variance. The request shall state that the conduction of a directional survey or the correction of the hole is not needed to protect the safety of persons engaged in active coal mining.~~
- C. ~~The Chief may require the permittee to conduct a directional survey if determined that the lack of assurance of the horizontal location of the hole may pose a danger to persons engaged in active coal mining.~~
- D. ~~All mining operations affected by the vertical ventilation hole shall be furnished, within 30 days, a copy of the completed survey and its interpretations.~~

4 VAC 25-101-140. Filing of report.

~~Within 30 days after the date that drilling is completed on a vertical ventilation hole, the operator of the hole shall file with the Chief a drilling report on a form prescribed by the Chief, an accurate map or plat showing the actual surface location of the hole, a drillers log, and the results of any other log or survey required to be run in accordance with this chapter or by the Chief. The drillers log shall state, at a minimum, the character, depth, and thickness of geologic formations encountered including groundwater-bearing strata, coal seams, mineral beds, and gas bearing formations.~~

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4 VAC 25-101-150. Mining within 500 feet of a vertical ventilation hole or gas well.

- A. Before removing any coal or other mineral, or extending any mine workings or operations within 500 horizontal feet of any permitted or pending vertical ventilation hole or gas well, the mine operator shall give notice by certified mail to the vertical ventilation hole operator and the Chief or, in the case of a gas well, the mine operator shall give notice as provided for in Section 45.1-161.121.A and Section 45.1-161.292.A of the Coal Mine Safety Act.
- B. The mine operator shall send to the vertical ventilation hole operator and the Chief an accurate map or plat. The map shall show the location of the hole and projected mine workings within 500 horizontal feet of the ventilation hole and shall be shown in accordance with the state plane coordinate system.
- C. Once notice and the map have been provided, the mine operator may proceed with mining operations as shown on the map. However, the mine operator shall not remove any coal or other mineral, or conduct any mining operations nearer than 200 horizontal feet, as determined by survey, to any permitted or pending vertical ventilation hole or gas well without the approval of the Chief.
- D. This provision shall not apply to mining operations in the seam which the vertical ventilation hole or gas well is intended to ventilate if safe mining procedures have been incorporated in the approved bleeder plan as provided in 4 VAC 25-101-190, unless the casing extends through that seam [or if the vertical ventilation hole, gas well, or pipeline is located outside the coal seam outcrop].

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4 VAC 25-101-160. Mining within 200 feet of a vertical ventilation hole, gas well or pipeline.

- A. A mine operator shall submit a plan to the Chief for approval to conduct mining operations within 200 feet (horizontally or vertically) of any permitted or pending vertical ventilation hole or gas well or to conduct surface mining operations within 200 feet of pipelines.
- B. The plan shall comply with requirements developed by the chief. It shall be accompanied by an accurate map or plat showing the location of the hole, well, or pipeline, mine workings within 500 feet of the hole, well, or pipeline, projected mine workings within 200 horizontal feet of the vertical ventilation hole, gas well, or pipeline in accordance with the state plane coordinate system.
- C. The Chief may, prior to considering the plan, make or cause to be made any inspections or surveys which he deems necessary.
- D. Notice of intent, including a copy of the plan, shall be sent by certified mail to the operator of the vertical ventilation hole or pipeline, which may be affected by the proposed mining operations. Gas well operators, which may be affected by the proposed mining operations, shall be given notice as required in Section 45.1-161.121.C and Section 45.1-161.292.B of the Coal Mine Safety Act. The notice shall inform the operator of the right to object to the proposed mining activity. Objections shall be filed with the Chief within 10 days of the date that the notice is received. If the operator files an objection, the Chief shall schedule a hearing in accordance with the provisions in 4 VAC 25-101-70.

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- E. If the mine operator submits proof in writing that the operator of the vertical ventilation hole, gas well, or pipeline does not object to the projected mining activity, then the Chief may waive the notice requirement and issue a permit, provided all other conditions for permit issuance have been met.
- F. The Chief may, if the operator of the vertical ventilation hole, or gas well, or pipeline does not file an objection within the specified period, approve the plan for the mining operations as projected, or with such modifications as the Chief may deem necessary.
- G. This section shall not apply to mining operations in the seam which the vertical ventilation hole or gas well is intended to ventilate, if safe mining procedures have been incorporated in the approved bleeder plan as provided in 4 VAC 25-101-190, unless the casing extends through the seam [or if the vertical ventilation hole, gas well, or pipeline is located outside the coal seam outcrop].

4 VAC 25-101-170. Pillars of coal to be left unmined, and other protective measures.

- A. When mining using an underground, auger or highwall mining method within 200 horizontal feet of a vertical ventilation hole or a gas well, the mine operator shall submit a plan showing the projected pillars of coal to be left unmined around each hole or well.
- B. Pillars shall be situated so that each hole or well is centered within a pillar, and each pillar shall conform to the specifications shown in Table I below, based on the depth of cover above the area being mined. The entries developed adjacent to any pillar may not exceed 20 feet in width without

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prior approval from the Chief. In no circumstances may the most narrow pillar dimension be less than twice the width of the adjacent entries.

Table I

Pillar Specifications

	Required Solid	Required Additional	Total Area
Cover	Pillar Area	Pillar Area (Solid or	Bearing Surface
(in feet)	(in square feet)	Split, in sq. ft.)	Required (in sq. ft.)
0-149	3,600		3,600
150-249	5,625		5,625
250-349	10,000		10,000
350-449	10,000	5,600	15,600
450-549	10,000	13,000	23,000
550-649	10,000	22,000	32,000
650 or more	10,000	30,000	40,000

4 VAC 25-101-180. Mining within 200 feet of a plugged vertical ventilation hole or gas well.

- A. A mine operator shall submit an application for a permit to mine through or within 200 feet of either a plugged vertical ventilation hole or plugged gas well.

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- B. The plan shall comply with requirements developed by the chief. It shall be accompanied by an accurate map or plat showing the location of the hole, well, or pipeline, mine workings within 500 horizontal feet of the hole, well, or pipeline, and projected mine workings within 200 horizontal feet of the hole, well, or pipeline in accordance with the state plane coordinate system. The plan shall also contain safety precautions relevant to mining procedures such as: ventilation standards, rock dusting standards, frequency of methane checks, communication procedures, and personnel involved.
- C. The application shall contain information from the log completed by the person who conducted the plugging necessary to establish that:
1. The hole or well has been adequately plugged with cement, from a point 50 feet below the coal seam to a point 50 feet above the coal seam, unless otherwise approved by the Chief.
 2. No gas or fluids can migrate into the mine workings.
- D. The Chief may, prior to considering the plan make or cause to be made any inspections or surveys which he deems necessary. The Chief may also prescribe safety precautions he deems necessary.
- E. Notice of intent, including a copy of the plan, shall be sent by certified mail to the vertical ventilation hole or gas well operator if applicable and, in the case of mining through a gas well, to the Gas and Oil Inspector. The notice shall inform the hole or well operator and the Gas and Oil Inspector of the right to object to the proposed mining activity. Objections shall be filed with the Chief within 10

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~~days of the date that the notice is received. If the hole or well operator or the Gas and Oil~~

~~Inspector files an objection, the Chief shall schedule a hearing in accordance with the provisions of 4 VAC 25-101-70.~~

- F. ~~If the mine operator submits proof in writing that none of the persons required to be notified under this section has any objection to the projected mining activity, then the Chief may waive the notice requirement and approve the plan, provided all other conditions for plan approval have been met.~~
- G. ~~The Chief may, if an objection is not filed by the hole or well operator or the Gas and Oil Inspector within the specified period, approve the plan for the mining operations as projected, or with such modifications and written safety precautions as the Chief may deem necessary.~~

4 VAC 25-101-190. Mining seams impacted by vertical ventilation holes and coalbed methane wells intended to degas the seams being mined.

~~Mining through vertical ventilation holes, coalbed methane wells, or gas wells intended to degas the seam being mined shall comply with safe mining procedures which have been incorporated in the approved Bleeder Plan required by Section 45.1-161.220 of the **Coal Mine Safety Act**.~~

4 VAC 25-101-200. Plugging of vertical ventilation holes.

- A. ~~Permit requirements; variances.~~

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1. ~~Plugging operations shall not commence until a detailed plugging plan has been submitted to and approved by the Chief. A permit modification is required if the vertical ventilation hole was not previously permitted for plugging.~~
2. ~~Any person may file an application with the Chief to re-plug a previously plugged vertical ventilation hole in any manner permissible under provisions of this section to facilitate the safe mining-through of the vertical ventilation hole at a later date.~~
3. ~~The Chief may, upon application by the permittee, approve a variance to the prescribed plugging methods for the following reasons if it is determined that the alternate plan meets the requirements of Sections 45.1-161.121 and 45.1-161.292 of the Coal Mine Safety Act:~~
 - a. ~~The coal owner, operator, or lessee of record requests a special plugging program to facilitate mine safety or to obtain approval from another governmental agency for the safe mining-through of a vertical ventilation hole. The application for a variance must include documentation of the request from the coal owner or operator.~~
 - b. ~~The permittee has obtained written authorization from the coal owner or operator for alternate plugging of the coal-bearing section. The application for a variance must include documentation of approval by the coal owner or operator.~~
 - c. ~~Downhole conditions such as junk in the hole, stuck or collapsed casing, caving or other adverse conditions which would prevent proper execution of the prescribed plugging methods.~~

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- d. A permittee presents an alternate plugging plan, which may differ in method from that prescribed herein, but which will achieve the desired result.
- B. Plugging in open hole. When a vertical ventilation hole or section of a vertical ventilation hole without casing is to be plugged or plugged back, it shall be sealed and filled as prescribed in this section.
1. At each coal seam, a cement plug shall be placed from not less than 50 feet below the base of the coal to not less than 50 feet above the top of the coal. Whenever two or more coal seams are not widely separated, they may be treated as a single seam and plugged accordingly.
 2. If a source of groundwater capable of having a beneficial use is exposed in open hole below surface (water-protection) casing, a cement plug at least 100 feet in length shall be placed below the base of the lowest such groundwater zone.
 3. A cement plug of minimum length of 100 feet shall be placed across the bottom of the surface (water-protection) casing. The plug shall be placed so as to have approximately equal lengths in open hole and inside casing. If the vertical ventilation hole is without surface casing, a continuous cement plug shall be placed at least 50 feet below the base of the lowest known aquifer or 300 feet depth, whichever is deeper, to the surface.
 4. All intervals below and between plugs shall be filled with drilling mud, bentonite gel, or other appropriately weighted materials approved by the chief.

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- C. Plugging in cased hole. When a cased hole or section of a cased hole is to be plugged or plugged back, it shall be sealed and filled as prescribed in this section.
1. All perforated intervals shall be either squeeze-cemented or otherwise isolated from the hole by suitable plugs placed across or immediately above the perforated interval. Cement plugs placed across perforations shall extend to at least 50 feet above the top perforations. A cement plug shall be placed to at least 50 feet above squeezed perforations. Cement plugs placed entirely above perforations shall be at least 100 feet in length. At least 20 feet of cement shall be placed on top of bridge plugs, cement retainers, or other tools left in the hole.
 2. At each minable coal seam which is behind a properly installed and cemented coal-protection casing, a cement plug shall be placed from not less than 50 feet below the base of the coal to not less than 50 feet above the top of the coal. Whenever two or more coal seams are not widely separated, they may be treated as a single seam and plugged accordingly.
 3. If casing is not to be pulled, and there is uncemented annulus behind the pipe, plugging shall be as follows:
 - a. Each gas or water-bearing stratum present behind the pipe in an uncemented annulus must be isolated by perforating the casing at each zone and squeezing cement up into the zone, or circulating cement up the annulus such that a cement fill up of not less than 100 feet is

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- achieved. When squeezing or circulating the annulus, a cement plug of at least 50 feet shall be placed inside the casing above the perforations.
- b. If there is uncemented annulus between an inner casing and the coal-protection string, the casing shall be perforated to allow cement to be circulated over the prescribed interval, and a plug of equal length shall be placed inside the inner casing.
- c. If a fresh water aquifer is exposed to the hole in an uncemented annulus, it shall be isolated by perforating the casing at least 100 feet below the aquifer and squeezing cement into the annulus or circulating it up the annulus so that a fill-up of not less than 100 feet is achieved. When squeezing or circulating cement, a cement plug of at least 100 feet shall be placed inside the casing above the perforation.
- d. At a point no less than 50 feet below the bottom of the surface (water-protection) string, the casing shall be perforated and cement circulated up the annulus to a minimum fill-up of 100 feet. A plug of equal length shall be placed inside the casing.
- e. From a point not less than 50 feet below the surface, a cement plug shall be installed which reaches the surface. If any uncemented annuli are present at the surface, the voids should be filled and sealed to the greatest extent possible by introducing cement from the surface.
- f. All intervals below and between plugs shall be filled with drilling mud, bentonite gel, or other appropriately weighted materials approved by the chief.

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4. If casing is to be pulled, plugging shall be as follows:

- a. All perforated intervals shall be isolated as described in subdivision C.1 of this section.
- b. Casing stubs shall be isolated by placing a plug across or above the cut-off point. Cement plugs shall be at least 100 feet in length and shall be placed so as to have approximately equal length inside and above the remnant casing. Permanent bridge plugs may be placed above the stub and shall be capped by at least 20 feet of cement.

D. Plugging operations involving uncemented water-protection casing or coal-protection casing.

- 1. If the annulus of the largest casing present across a minable coal-bearing section is not cemented across that section, then one of the two procedures listed below must be followed:
 - a. The casing must be perforated at least 50 feet below the lowest coal seam, and cement circulated in the annulus to the surface (if water-protection casing is absent or not properly placed and cemented to surface), or to at least 100 feet above the highest coal (if the casing is to be partially pulled to facilitate plugging operations in the fresh water zone). Plugging shall proceed according to cased hole requirements; or
 - b. The casing shall be pulled from the hole, and plugging shall proceed according to open hole requirements.

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2. If the annulus of the largest casing present across the fresh-water-bearing section is not cemented across that section, then one of two procedures listed below must be followed:
 - a. The casing shall be perforated below the lowest known fresh-water zone or at a minimum depth of 300 feet. Cement shall be circulated in the annulus to the surface. Plugging shall proceed according to cased hole requirements; or
 - b. The casing shall be pulled from the hole, and a continuous cement plug shall be placed from below the base of the lowest known fresh-water aquifer exposed to the hole or 300-foot depth, whichever is deeper, to the surface.
- E. Unfillable cavities. When an unfillable cavity, such as a cavern, mine void, blast stimulation zone, or gob completion is encountered, the section shall be plugged as follows:
1. If the stratum with the unfillable cavities is the lowest stratum in the hole, a plug shall be placed at the nearest suitable point not less than 20 feet above the stratum. Cement plugs shall be at least 100 feet long, and at least 20 feet of cement shall be placed on top of bridge plugs.
 2. If the stratum with unfillable cavities is above the lowest stratum, a plug shall be placed below the stratum and shall extend to within 20 feet of its base. A plug shall also be placed above the stratum as described in subdivision E 1 of this section.

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4 VAC 25-101-210. Identifying plugged holes; plugging affidavit.

A. Plugged holes shall be permanently marked in a manner as follows:

1. The marker shall extend not less than 30 inches above the surface and enough below the surface to make the marker permanent.
2. The marker shall indicate the permittee's name, the hole name, the hole number and date of plugging.

B. A permittee may apply for a variance from the Chief to use alternate permanent markers. Such alternate markers shall provide sufficient information for locating the plugged hole. Provisions shall also be made to provide for the physical detection of the plugged hole from the surface by magnetic or other means.

C. When any hole has been plugged or re-plugged in accordance with 4 VAC 25-101-210, two persons experienced in plugging holes who participated in the plugging of a hole shall complete a plugging affidavit on a form prescribed by the Chief, or equivalent thereof, setting forth the time and manner in which the hole was plugged and filled and a permanent marker was placed.

D. One copy of the plugging affidavit shall be retained by the permittee, one shall be mailed to any coal owner or operator on the tract where the hole is located, and one shall be filed with the division within 30 days after the day the hole was plugged.

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4 VAC 25-101-220. Annual report; abandonment.

Annually by July 1st, the vertical ventilation hole operator shall submit to the Chief a status report of all permitted holes. When it is determined by the Chief that a vertical ventilation hole is no longer used for the purpose for which it was permitted, the hole shall be plugged in accordance with 4 VAC 25-101-200 unless otherwise approved by the Chief.

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I certify that this regulation is full, true, and correctly dated.

O. Gene Dishner, Director

Department of Mines, Minerals and Energy